Supplementary Figures

Figure S1. Ambient seismic noise levels in dB relative to velocity power at two stations, HFN3 and BFN1, (Figure 1B). Both stations have three components (East, North, Vertical; or ENZ) but different types of instruments (EP, HH). The drop in power at frequencies less than 2 Hz is caused by a high-pass filter to the short-period instruments. Note that at all frequencies, BFN1 is 30dB quieter than HFN3, although they are separated by less than 2 km. Since the ambient noise field is unlikely to vary by 30dB within 2 km, we believe that HFN3's records are probably dominated by incoherent noise, i.e. not dominated by coherent elastic waves.

Figure S2. 10-min raw noise records from HFN3 and BFN1 at the same scale.

Figure S3. Autocorrelation spectra for BFN1's three components (Z, N, E). These spectra do not show the resonances because they are controlled by both noise source amplitude and structure. The spectral ratios cancel the source term and highlight the structure term with resonance peaks (Figure 6).

Figure S4. Autocorrelation spectral ratios for station HFN3, the noisier station shown in Figure S1. Because incoherent noise dominates the noise records and autocorrelation does not enhance the coherent noise, the resonance peaks are not visible.

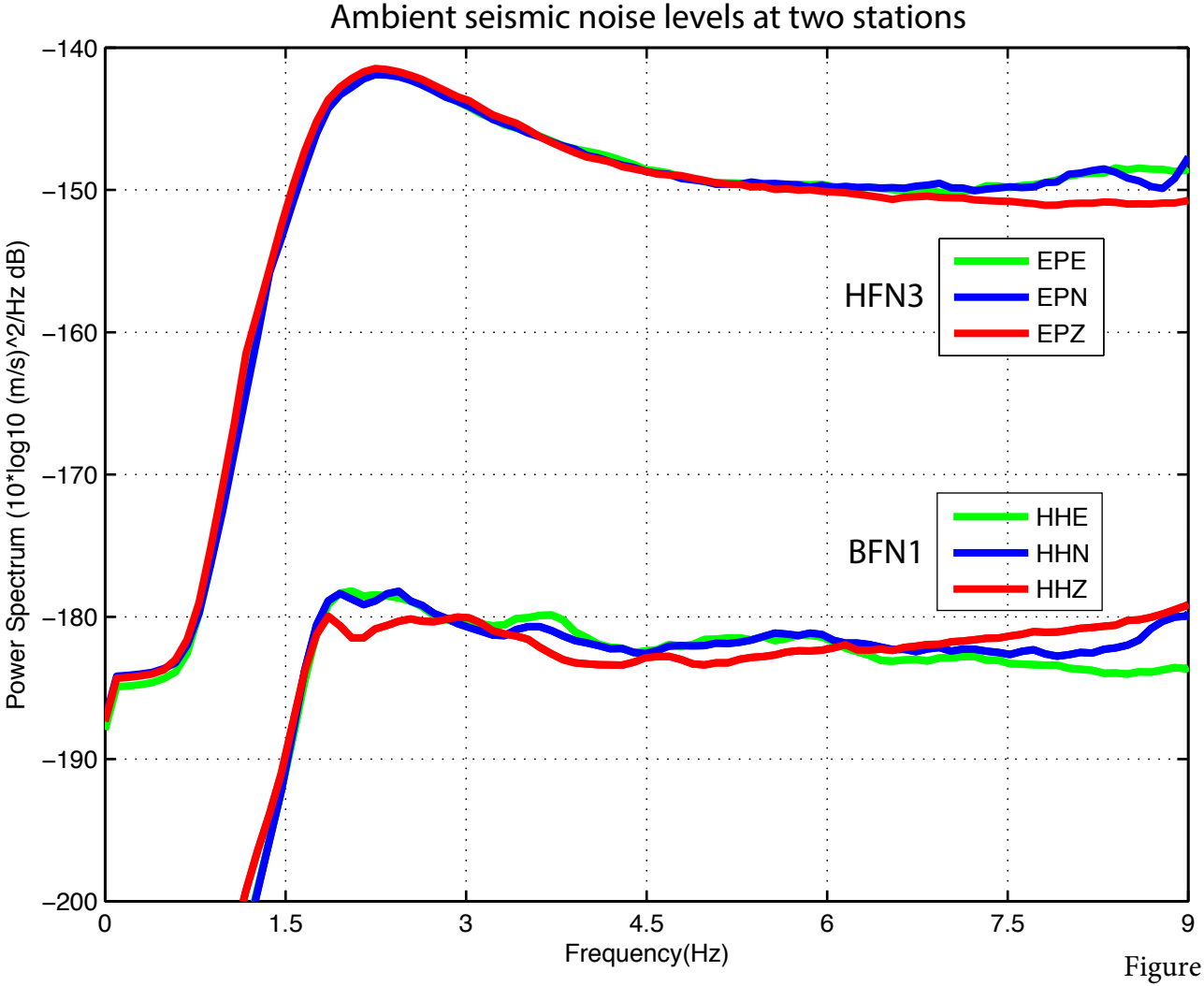
Ambient seismic noise levels at two stations
Power Spectrum (10*log10 (m/s)^2/Hz dB)
−140
−150
−160
−170
−180
−190
−200
0
1.5
3
4.5
6
7.5
9
Frequency(Hz)
HFN3
EPE
EPN
EPZ
BFN1
HHE
HHN
HHZ

Figure S1

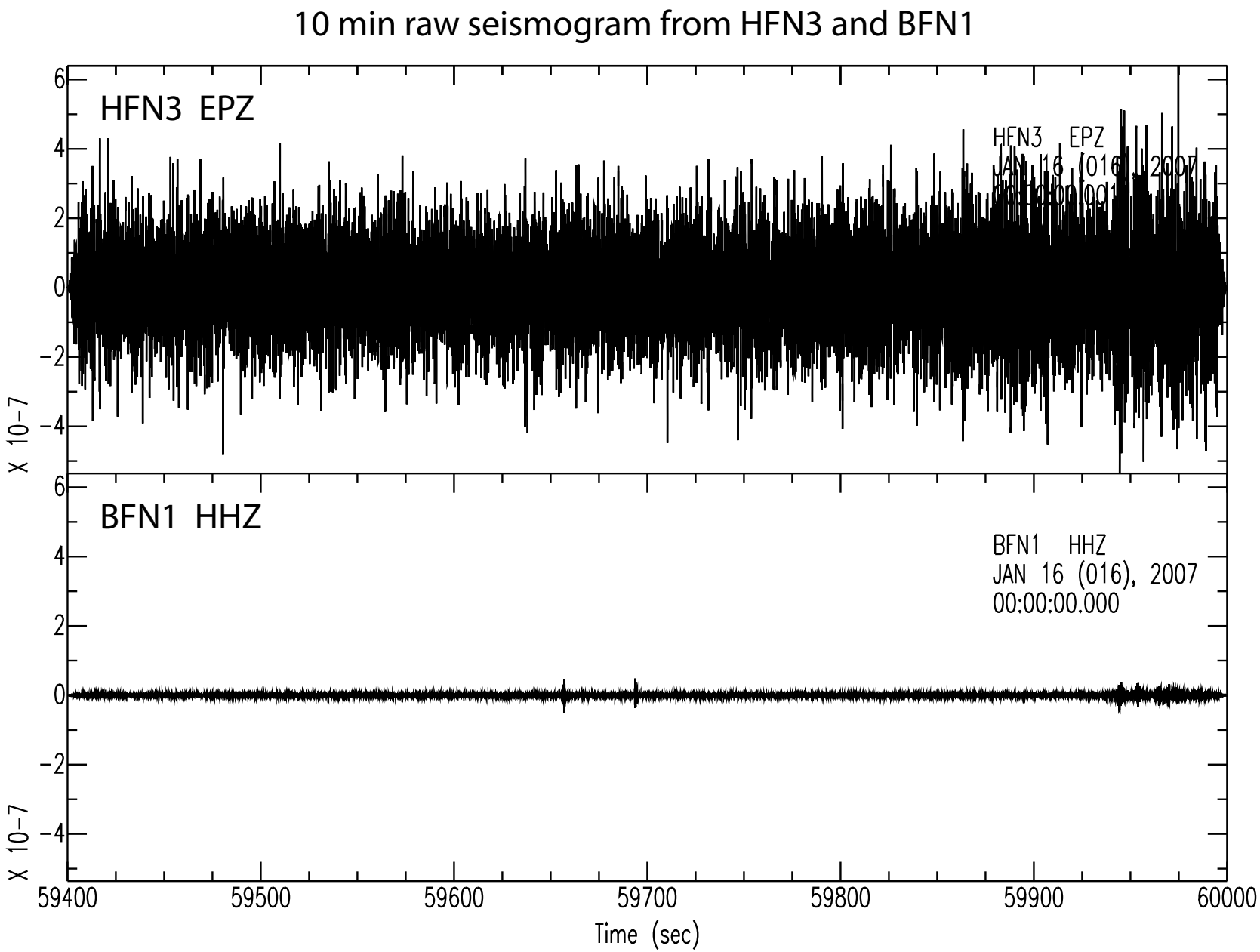
10 min raw seismogram from HFN3 and BFN1
HFN3 EPZ
HFN3 EPZ
JAN 16 (016), 2007
BFN1 HHZ
BFN1 HHZ
JAN 16 (016), 2007
00:00:00.000
X 10-7
X 10-7
6
4
2
0
-2
-4
59400
59500
59600
59700
59800
59900
60000
Time (sec)

Figure S2

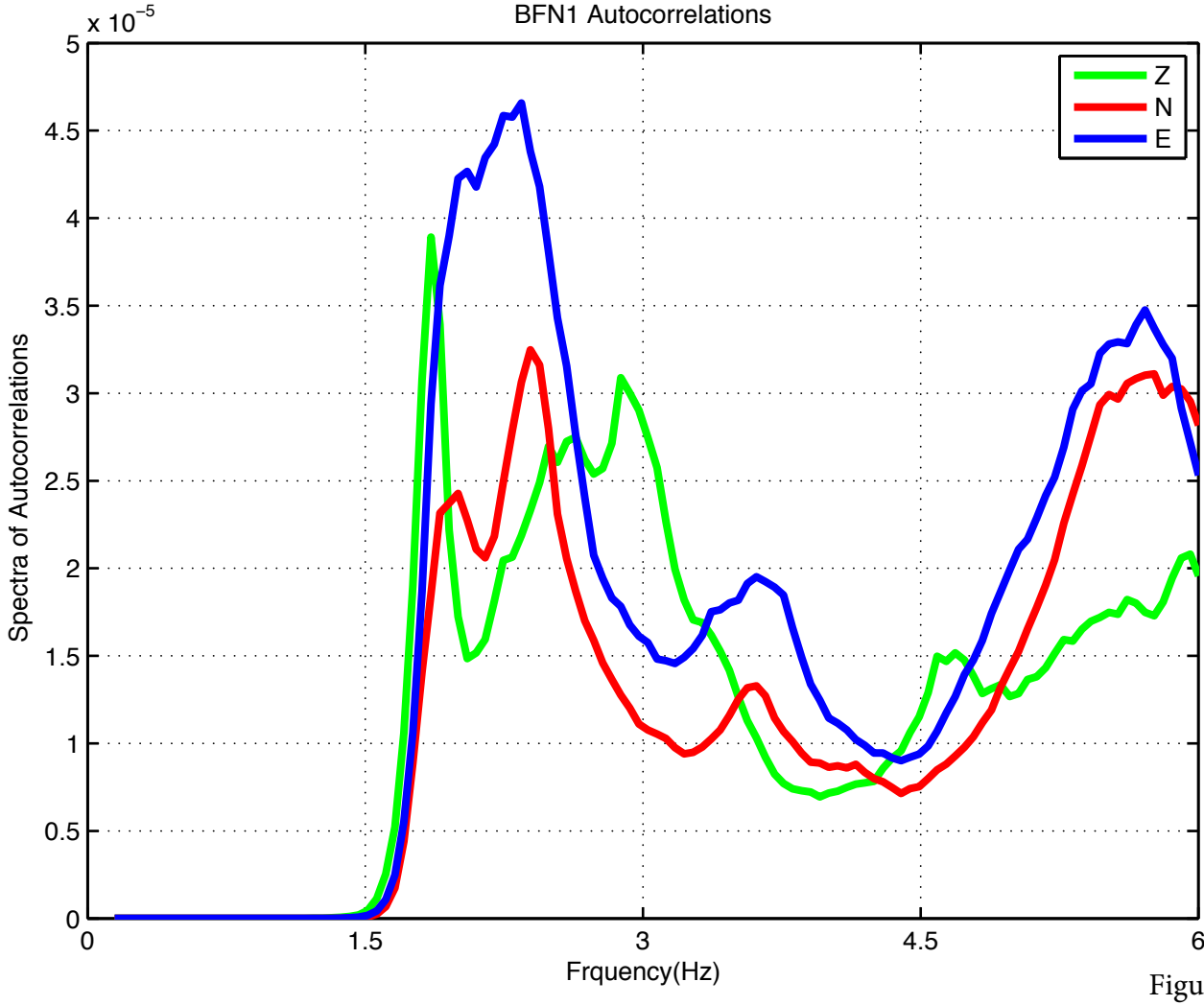
BFN1 Autocorrelations
x 10^-5
Spectra of Autocorrelations
Frquency(Hz)
Z
N
E
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
0
1.5
3
4.5
6

Figure S3

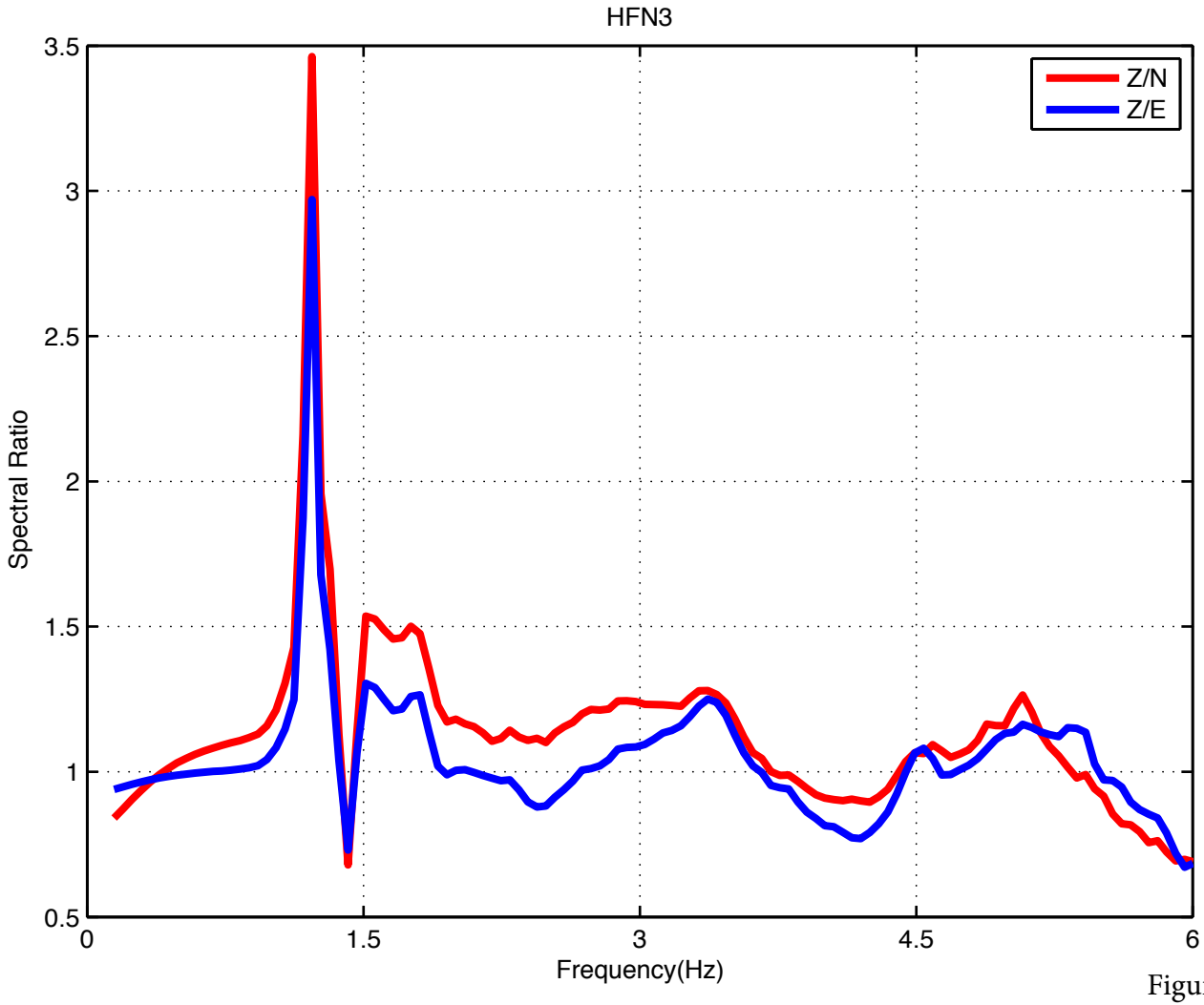
HFN3
Z/N
Z/E
Spectral Ratio
Frequency(Hz)
3.5
3
2.5
2
1.5
1
0.5
0
1.5
3
4.5
6

Figure S4